

CLAIMS

1. A data structure, comprising:

a payload;

a redundancy; and

5 a divider between the payload and the redundancy, the divider being movable from a first location, which provides a first ratio of the payload to the redundancy, to a second location, which provides a second ratio of the payload to the redundancy.

10 2. The data structure of claim 1, wherein the redundancy contains a first error correction code when the divider is in the first location and a second error correction code when the divider is in the second location.

3. A method, comprising:

15 associating an initial error correcting code with a redundancy defined within a data storage device; and

replacing the initial error correcting code with an updated error correcting code.

20 4. The method of claim 3, additionally comprising moving a divider, defined between the redundancy and a payload, to provide space required by the updated error correcting code within the redundancy.

25 5. The method of claim 3, additionally comprising reorganizing an address space shared by a payload and the redundancy to provide space required by the updated error correcting code within the redundancy.

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6. The method of claim 3, additionally comprising performing a memory test on the data storage device to determine if the initial error correction code is of sufficient strength.

5 7. The method of claim 3, additionally comprising tracking errors made by the data storage device to determine if the initial error correction code is of sufficient strength.

10 8. The method of claim 3, additionally comprising tracking time and usage of the data storage device to determine if the initial error correction code is of sufficient strength.

15 9. A method, comprising:
defining a payload and a redundancy within a storage device, the
payload to the payload plus redundancy defining a ratio; and
dynamically altering the ratio to change an amount of the redundancy.

20 10. The method of claim 9, additionally comprising:
performing a memory test on the data storage device to determine if the
ratio results in sufficient redundancy.

25 11. The method of claim 9, additionally comprising:
tracking errors made by the data storage device to determine if the ratio
results in sufficient redundancy.

12. The method of claim 9, additionally comprising:
tracking time and usage of the data storage device to determine if the
ratio results in sufficient redundancy.

5 *Sub a2* 13. A system, comprising:
an update error correcting code (ECC) assignment module to assign an
updated error correcting code to replace an initial error correcting code in
response to a changed error rate; and
an ECC library containing at least two ECCs from which the update
10 error correcting code assignment module may select.

14. The system of claim 13, additionally comprising an initial error
correcting code assignment module to assign the initial error correcting code in
response to an initial error rate.

15 15. The system of claim 14, additionally comprising a technology
type determination module to report a technology of a storage device to the
initial error correcting code assignment module so that the initial error
correcting code will be more appropriately selected.

20 *Sub a2* 16. The system of claim 13, additionally comprising a storage device
memory test module to perform a memory test on a storage device and report to
the update error correcting code assignment module.

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17. The system of claim 13, additionally comprising an application determination module to determine an application to which a storage device will be put and to report to the update error correcting code assignment module.

5 18. The system of claim 13, additionally comprising an error tracking, recording and analysis module, to report information on errors made by a storage device to the update error correcting code assignment module.

10 19. The system of claim 13, additionally comprising an age and use tracking module to report information on an age and use level of a storage device to the update error correcting code assignment module.

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20. A system, comprising:

an ECC library, containing at least two error correcting codes;

an initial error correcting code assignment module to assign an initial
error correcting code from the ECC library appropriate to an expected initial
5 error rate;

a technology type determination module to determine a technology of a
storage device and to report the technology to the initial error correcting code
assignment module;

an application determination module to determine an application to
10 which the storage device will be put and to report to the initial error correcting
code assignment module;

an update error correcting code assignment module to assign an updated
error correcting code from the ECC library appropriate in response to a
changed error rate;

15 a storage device memory test module to perform a memory test on the
storage device and report to the update error correcting code assignment
module so that a decision to assign an updated error correcting code may be
made;

an error tracking, recording and analysis module to report information
20 on errors made by the storage device to the update error correcting code
assignment module so that a decision to assign an updated error correcting code
may be made;

an age and use tracking module to report information on an age and use
level of the storage device to the update error correcting code assignment
25 module so that a decision to assign an updated error correcting code may be
made; and

an application tracking module to report changes in an application to which the storage module is being used to the update error correcting code assignment module so that a decision to assign an updated error correcting code may be made.

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21. A computer-readable medium having computer-executable instructions thereon which, when executed, perform acts comprising:

associating an initial error correcting code with a redundancy defined within a data storage device;

10 associating an updated error correcting code with the redundancy in response to a change in an error rate associated with the data storage device; and

15 moving a divider, defined between the redundancy and a payload within the data storage device, to provide space required by redundancy data associated with the updated error correcting code.

22. A computer-readable medium having computer-executable instructions thereon which, when executed, perform acts comprising:

20 monitoring an error rate of a storage device; and
dynamically altering a ratio of a redundancy to a payload to provide a level of redundancy appropriate to the error rate.

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